SCHOOL OF PUBLIC HEALTH

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LEGON

FACTORS AFFECTING CASE DETECTION OF TUBERCULOSIS: PERSPECTIVE OF TB PATIENTS IN SUNYANI-MUNICIPAL, SUNYANI-WEST DISTRICT AND TANO NORTH DISTRICT, OF BRONG-AHAFO REGION OF GHANA

BY

KAN ATOLEE DAVID N.

(10550891)

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DECLARATION

I David N. Kan Atolee declare that except for references to other people's work which have been duly acknowledged, this dissertation was the result of my own original fieldwork carried out under supervision, and that this dissertation, either in part or completely has not been presented elsewhere for another degree.

STUDENT:..... 26/09/17.....

DAVID N. KAN ATOLEE DATE

SUPERVISOR:..... 29/09/17.....

DR. SAMUEL OKO SACKEY DATE

DEDICATION

This study is dedicated to my family and friends for their endurance throughout the period of my study.

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ABSTRACT

Background

Tuberculosis is an infectious disease caused by different species of mycobacteria. In 2006, among all the countries reporting to WHO,199 countries notified 5.1 million new and relapse cases, 2.4 million (47%) were new smear-positive cases. Annual review of the districts shows that the 75% case detection rate target for the year 2014, Tano-North obtained 40%, Sunyani Municipal 54% and Sunyani-West 47% rate. This study was therefore undertaken to determine the factors affecting case detection of tuberculosis in the Sunyani Municipal, Sunyani-West and Tano-North districts of Brong-Ahafo Region of Ghana.

Methodology

This was a descriptive cross sectional study conducted among 80 tuberculosis patients. A structured questionnaire was used for the data collection. The data collected were entered in Microsoft Excel and imported into STATA version 13 for analysis. Descriptive statistics were conducted and Pearson's Chi square statistical test was employed to determine the association between the dependent variable and the independent variables.

Results: out of the total of 80 respondents interviewed, 81.7% said TB is a disease. Majority (65.0%) of respondents know symptoms of TB (cough, fever, loss of appetite and tiredness), 92.5% of the patients interviewed spent 30 minutes at the facility, 1.20% of people diagnosed within two weeks, 91.2% of respondents stayed home one or more months after the start of signs and symptoms before seeking care.

People sought health using non-orthodox facilities resulting in delays in reporting to biomedical facility.

Conclusion: based on findings, case detection was being hampered by health seeking behavior as patients had several encounters with the biomedical health system before being diagnosed, hence it is concluded that screening for TB at health facilities were affecting case detection.

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ABBREVIATIONS AND ACRONYMS

ARI:	Annual Risk of Infection
BCG:	Bacillus Calmette Guerin
BDN:	Basic Development Needs
CBSV:	Community-Base Surveillance Volunteers
CBTBC:	Community based TB care
CMH:	Commission on Macroeconomics and Health
CHN:	community health nurses
DDHS:	District Director of Health Service
DCE:	District Chief Executive
DHD:	District Health Directorate
DHMT:	District Health Management Team

DOT:	Direct Observed Therapy
HBC:	High Burden Countries
HIV/AIDS:	Human Immune Virus/Acquired Immune Deficiency syndrome
IDIs:	In-depth Interviews
MOH:	Ministry of Health
NTP:	National Tuberculosis Control Programme
PHC:	Primary Health Care
SCHW:	Sub-County Health Worker
TNDA:	Tano North District Assembly
USAID:	United State Agency for International Development
WHO:	World Health Organization

XDRTB:	**Extremely drug resistant tuberculosis**

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Tuberculosis (TB) is an infectious disease caused by several species of mycobacteria. TB case detection rate is the proportion of notified cases of TB (including new and relapse) among the WHO estimated incident cases in a country, reported as an annual figure. While previously smear-positive cases were used, the World Health Organization (WHO) currently provides estimates for all forms of TB (WHO, 2007). Case detection rates should only be used as a general guide for country-level data, and subnational estimates should be avoided (WHO, 2007).

Fueled by poverty, poor public health systems, and increasing HIV/AIDS prevalence, TB continues to be a persistent challenge for global health and development (Waisbord, n.d.).

TB control programs currently emphasize the Direct Observed Therapy Short-Course (DOTS) strategy, promoted by the World Health Organization and the International UNION Against Tuberculosis and Lung Disease (Borgdorff, 2004). The current goals are to achieve 85% treatment success and 70% case detection. Among others, TB global control is currently confronted with two main challenges to meet those goals: diagnosis delay and non-completion of treatment (Borgdorff, 2004).

The TB control programme has recognized and addressed system components in which behavior is a key issue. Both diagnosis delay and non-completion of treatment are two central behavioral challenges. Patients are expected to seek care and complete treatment.

Health care providers are expected to perform successfully a number of actions, including offering sputum smear examination to patients, conducting tests adequately, and monitoring medicine intake. Success in TB detection and treatment requires specific behaviors from patients and health care providers within contexts that facilitate those practices (Waisbord, n.d.).

A study in Nigeria, found that with the introduction of Directly Observed Treatment (DOT), there has not being significant improvement as case detection rates remains at a 21% low with treatment rates of 59% in 2003, which is the lowest among the high burden countries (Okuonghae, 2010). This means that even if DOT increase to 60% the case detection parameters is extremely crucial to the dynamics of TB detection in Nigeria as a means of reducing burden.

In Ghana TB remains a major cause of preventable adult morbidity and mortality and in 2007, WHO has estimated that 500,000 new cases occurred in Ghana, making it the 19 most TB burden country in Africa (Awofeso, Schelokova, & Dalhatu, 2008). However TB has remained a fearful disease among the Ghanaian population as demonstrated by the local Akan name for it ''Nsamanwa", which connote both fear and death. The term "Nsamanwa" literally means ghost cough", which suggests that once you get the disease, you have literally become a ghost or a dead person. (Ahorlu & Bonsu, 2013)

TB patients are generally stigmatized across the globe. The main strategy for TB treatment globally is the directly observed treatment short course (DOTS) which relies on case detection and treatment with multiple antimicrobial drugs for at least six months. It is anticipated that this strategy will enhance treatment compliance and thereby improve treatment outcome (Awofeso et al., 2008). Central to this strategy however is laboratory

diagnosis to confirm clinical cases before treatment is initiated. This is where the attitude of health workers toward patients in terms of stigmatization could negatively influence the health seeking behavior among suspected patients. Social factors that are known to be driving the global increase in TB cases include; overcrowding, especially in urban centres, late reporting and diagnosis, non-compliance to treatment schedule, lack of commitment on the part of national control programme in developing countries, lack of education, health care infrastructure and poverty (Ahorlu & Bonsu, 2013). Despite increased efforts at prevention and the wide-spread availability of effective short-course anti-tuberculosis chemotherapy in the past few decades, the incidence of tuberculosis is on the increase both in developed and developing countries (Ahorlu & Bonsu, 2013). The emergence of extremely drug resistant tuberculosis (XDRTB) from South Africa is going to be a major threat to TB control in Africa. This is because, in sub-Saharan Africa, case detection rates are still low and the period from first symptom to diagnosis and treatment could be quite long (Ahorlu & Bonsu, 2013).

This study was designed to determine factors affecting case detection in the Sunyani Municipal, Sunyani-West and Tano-North districts of Brong Ahafo Region of Ghana. This study is necessary to generate information to help the districts and TB control programme for appropriate action to forestall any undue consequences that may be brought by TB in the study area.

1.2 PROBLEM STATEMENT

Tuberculosis (TB) prevalence for adults in Ghana is 286 per 100,000 population, more than twice the estimated WHO value for all ages (NTP, 2014). Though there are regional variations in the prevalence, Brong Ahafo region is one of the regions in Ghana with a

high TB prevalence of 70% per 100,000. Since the year 2005, Ghana has been implementing the new Stop TB Strategy in all health facilities nationwide. Key among the objectives of the new strategy is to increase case detection rates from 36% to 70% and cure rates from 71% to 85% from 2005 to 2010 as a step to achieving MDG six by 2015 (GHS, 2007). The National Tuberculosis Health Sector Strategic Plan for Ghana, 2009–2013, clearly identifies the low TB case detection rate as one of the main challenges facing TB control in Ghana (MOH_Ghana, 2009). A target was set to increase TB case detection rate (all forms) from 45% in 2010 and 72% in 2013. This indicates that Tano North district is short of 35% case detection rate to make up the yearly case detection target, Sunyani-West district 25% and Sunyani Municipal 21% respectively (NTP, 2014). Therefore all the three districts need to make up for these gaps of case detection to be able to meet their case detection rates.

Community-related and health system factors have been reported to affect tuberculosis case detection (Awofeso et al., 2008). For Ghana to be able to achieve the elimination of TB as envisioned in sustainable development goals, bottlenecks to case detection need to be addressed because treatment success rate is above 86% which has exceeded the global target (NTP, 2014), Tuberculosis causes millions of deaths, infects one-third of the world's population, profoundly damages households and national economies, and yet can be cured with drugs that cost as little as $10 per patient (WHO, 2007, 2014). This study was therefore designed to determine the community and health system factors that may affect tuberculosis case detection in Sunyani-Municipal, Sunyani-West and Tano-North districts.

1.3 CONCEPTUAL FRAMEWORK

The frame work consist of community level factors, health level factors and the individuals level factors affecting case detection. An individual cultural and taboos can hinder case detection because in some communities, it is a taboo to seek orthodox services. Knowledge of community members about tuberculosis can affect case detection because once they do not have knowledge about TB they will not go to the hospital for diagnosis. Health seeking behavior of the community can affect case detection because if somebody is sick and does not seek care in orthodox facility he is more likely not to be detected. Discrimination and stigma affect case detection as people will not want to come to report at health facility because of fear of been discriminated and stigmatized. The distance from community to service delivery centre can affect TB case detection as patient will not want to go if the facility is far from reach. Health staff attitude can prevent patients from reporting to hospitals to be diagnosed. In the same way health workers due to one reason or the other may not be able to diagnose TB patients though they visited the facility. Lack of logistics can affect case detection as patients may take long time to be diagnosed or may not be diagnosed at all because some patients may be referred to private facilities who may not return. If there is lack of supervision cases will go undetected as no measures in place to ensure that cases are detected. If services are not available people are more likely not to be detected as they will have no place to go for services. Individuals age can affect case detection because is obvious that adults will want to seek care as compare to children. Sex play a role as far as TB is concerned as more men turn to be affected than women. Also women may feel stigmatized and will not want to come out to be diagnosed as compared to men. Religion of people can affect case

detection because some Christians will visit prayer camps before thinking about going to the hospital just like traditionalist will visit the traditional healer before considering hospital as the last resort.

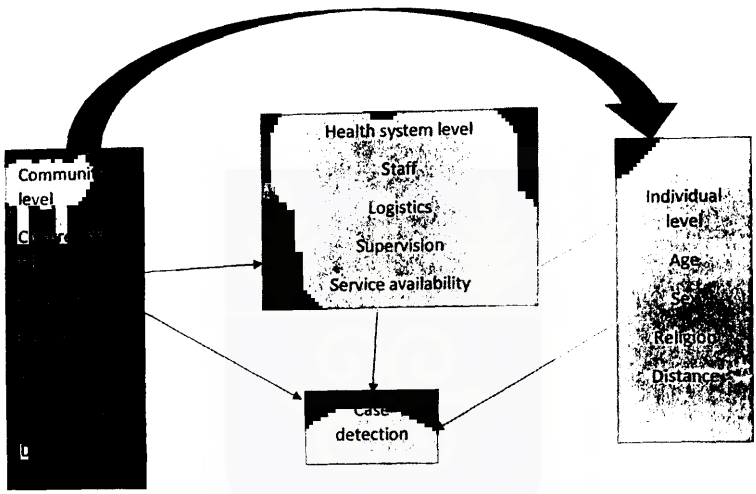

Figure 1: Conceptual framework

1.3 JUSTIFICATION OF STUDY

Tuberculosis (TB) currently ranked seventh in the global ranking of causes of death. Effective drugs to treat and cure the disease have been available for more than 50 years, yet in every 15 seconds, someone in the world dies from TB (WHO, 2014). Undetected cases of tuberculosis in communities are the main sources of infections for people. A contagious parameter predict that where tuberculosis is endemic a single undetected case will result in between 15-20 secondary cases. Therefore to be able to reduce the burden of

tuberculosis, early case detection is essential to be able to achieve the Sustainable Development Goal 3 of ensuring a healthy society.

This study will therefore identify factors responsible for the low case detection. Thus this can be incorporated into the National Tuberculosis Control Programme strategies to increase case detection

1.4 RESEARCH QUESTIONS

1. What community level factors affect case detection?
2. What health system level factors affect case detection?

1.5 RESEARCH OBJECTIVES

1.51 GENERAL OBJECTIVE

To determine factors that affect case detection of tuberculosis in Tano-North, Sunyani municipal and Sunyani-West district.

1.52 SPECIFIC OBJECTIVES

1. To determine TB patients socio-demographic characteristics factors that affect case detection
2. To assess TB patients knowledge about factors affecting case detection
3. To determine TB patient health seeking behavior that affect case detection
4. To determine the attitudes and perceptions of health workers towards case detection
5. To determine how accessibility of health care affect case detection

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 HISTORY OF TUBERCULOSIS

Tuberculosis has plagued humankind worldwide for thousands of years. John Bunya, an English Christian writer and preacher, described tuberculosis as "The Captain among these men of death" at a time when tuberculosis case rates in London had reached 1000 per 100 000 population per year (Ã, 2006). Tuberculosis continued to cause many deaths in London during the 19th century and accounted for up to 25% of deaths in Europe. The death toll from tuberculosis began to fall as living standards (housing, nutrition, and income) improved early in the 20th century, well before the advent of antituberculosis drugs. Despite the first antituberculosis drugs being discovered more than 60 years ago, tuberculosis today still kills an estimated 1·7 million people each year. Progress in the scaling up of tuberculosis diagnostic, treatment, and control efforts worldwide over the past decade has been associated with improvements in tuberculosis control in many parts of the world, but progress has been substantially undermined by the HIV-1 epidemic, the growing challenge of drug resistance, and other increasingly important epidemiological factors that continue to fuel the tuberculosis epidemic. Greater investment in new technologies, basic science, and translational and applied research has led to progress in the development of improved tuberculosis diagnostics, drugs, treatment regimens, biomarkers of disease activity, and vaccines; new perspectives in the pathogenesis of tuberculosis are also emerging (Lawn & Zumla, 2011).

2.2 BURDEN OF TUBERCULOSIS

Studies have it that mycobacterium tuberculosis infects a third of the world's population. In 2003 there were an estimated 8.8 million new cases of tuberculosis (TB) worldwide. The African region (24%), South-East Asia region (35%), and Western Pacific region (22%) together accounted for 82% of all notified cases and similar proportions of new smear positive cases. Developing countries had 95% of TB cases and 98% of TB deaths (WHO, 2005). Uganda is one of the world's 22 high burden countries with TB. The country has an estimated annual risk of infection (ARI) of 3% -equivalent to 150-165 new smear positive TB cases per 100,000 population per year or 300-330 total TB cases per 100,000 per year. Uganda is yet to attain the global case detection and treatment success targets of 70% and 85%, respectively. In 2003, the country detected 52% of the expected new smear positive cases. Of these cases, 67.6% were successfully treated (Health, 2006).

It is believed that in many countries, TB cases are found through passive case finding, where patients present themselves to a health facility if they suspect they may have TB. This approach is dependent upon an individual with TB symptoms first recognizing that they have symptoms of tuberculosis, then making a decision to seek health care, and finally seeking care from a provider trained in the DOTS strategy who will follow approved standards for TB diagnosis and treatment.

2.3 CAUSES AND TRANSMISSION OF TUBERCULOSIS

Tuberculosis (TB) disease in humans is a communicable disease caused by a bacterium, *Mycobacterium tuberculosis*. The *Mycobacterium tuberculosis* comprised of complex of

various types of organism consisting of *M. tuberculosis, M. bovis, M. africanum, M. microti, and M. canetti* (Varaine & Rich, 2014). All these can cause TB in human but the majority of TB cases are caused by *M. tuberculosis* (CDC, 2013). TB can affect any part of the body but only active pulmonary and laryngeal TB pose a risk of transmission from one person to another. The main source of infection is untreated smear-positive pulmonary tuberculosis (PTB) patient discharging the bacilli (WHO, 2004). TB is mainly spread by airborne route when the infected patient expels droplets containing the bacilli are inhaled by a person.

2.4 SIGNS AND SYMPTOMS OF POULMONARY TUBERCULOSIS

The clinical manifestations of tuberculosis depend on a number of factors: age, immune status, co-existing diseases, immunization status of the individual with bacillus Calmette-Guerin (BCG); virulence of the infecting organism and host-microbe interaction. Before the advent of the HIV epidemic, approximately 85% of reported tuberculosis cases were pulmonary only, with the remaining 15% being extra-pulmonary or both pulmonary and extra-pulmonary sites (Serafino, Mbbs, & Med, 2013).

Cough is the commonest presentation, it may be nonproductive initially, but as inflammation and tissue necrosis ensue, sputum is produced. Haemoptysis is occasionally a presenting symptom but usually results from previous disease and may not indicate active tuberculosis. It may arise from tuberculous bronchiectasis, rupture of a dilated vessel in the wall of a cavity, bacterial or fungal infection (especially Aspergillus mycetoma) in a cavity or erosion into an airway (broncholithiasis). Inflammation of the lung parenchyma adjacent to a pleural surface may cause pleuritic pain. Dyspnoea is

unusual unless there is extensive disease and may result in respiratory failure. Rales or crackles may be heard in the area of involvement and bronchial breathing indicating consolidation.

2.5 TUBERCULOSIS DIAGNOSIS AND TREATMENT

The most common part of the body to have TB disease is the lungs. In resource-limited settings TB disease in the lungs is diagnosed by examining samples of sputum with a microscope. The sputum is smeared onto a small glass plate, stained with chemicals, and viewed under the microscope. If *M. tuberculosis* bacilli are present, they can often (but not always) be seen. These diagnostic tests are referred to as "sputum smears". Sometimes chest radiography is done to assist with making the diagnosis (Walton et al., 1999).

Antibiotics are the most effective in the treatment of TB to kill the bacteria. Effective TB treatment is difficult due to the unusual structure of the Mycobacterial cell wall which makes many antibiotics ineffective and hinders the entering of drugs. The two antibiotics commonly used for the treatment of TB are isoniazid and rifampicim, and treatment can be prolonged. Latent TB treatment usually uses single antibiotics, while with active TB disease is best treated with combination of several antibiotics to reduce the risk of bacteria developing antibiotics resistance. Latent TB patients are treated to prevent them from progressing to active TB disease later in life (Awofeso et al., 2008).

The recommended treatment for new cases of pulmonary TB as of 2010 is six months of combination of antibiotics containing isoniazid, rifampicin, pyrazinamide and ethanbutol

for the first two months and with just isoniazid for the last four months, where resistance to isoniazid is high ethanbutol is added for the last four months. When there is drugs resistance or TB recurs testing is done to see which drugs are the bacteria sensitive to before what treatment to start with. If Multi-drug-resistance Tuberculosis is detected, treatment with at least four effective antibiotics for 18-24 months is recommended (Awofeso et al., 2008).

2.6 TUBERCULOSIS CASE DETECTION

The global DOTS agenda also places emphasis on early case detection and initiation of appropriate treatment. Two main approaches of case detection are available; passive case findings and active case findings(Funded, Agency, & June, 2013).

Whenever a clinician in any health setting, either public or private, encounters a patient with suspected TB, specimens should be sent to a laboratory for diagnosis. When TB diagnosis is made, clinicians are legally required to report the case to the health authorities, usually by fax, phone, or mail, although some jurisdictions can report through secure web-based systems.

The health authorities then investigates the suspected case, confirm and reports verified cases. Laboratories are also required by law to report TB cases and do so both to the local and any higher health departments. The authorities ensures that the case meets the national TB case definition, and that the case is not a duplicate.

2.7 COMMUNITY LEVEL FACTORS AFFECTING TUBERCULOSIS CASE DETECTION

Studies in Tanzania have found that, in some communities, patients with low knowledge are more likely to visit traditional healers and pharmacists rather than DOTS providers, thereby delaying diagnosis. Although it does not analyze the reasons, preference for non-DOTS providers cannot be assumed to be the result of low knowledge; rather, it seems to be a common care-seeking practice based on familiarity and trust with non-DOTS healthcare providers. Also the study demonstrate that stigma deters people from seeking care and diagnosis (Cattamanchi et al., 2015). TB stigma is not new though, a well-documented literature has shown why and how TB has been highly stigmatized throughout history. Whilst the stigma of TB as "a disease of the poor" persists, more recently, HIV/AIDS stigma affects TB patients, particularly in communities where HIV/AIDS is prevalent hence making TB patients suffer from double stigma. TB stigma has been widely reported, stigma is perpetrated and reinforced by health staff, family, neighbors, and other groups. Patients postpone seeking care due to fears of finding out their HIV status, and suffering stigmatization and social rejection as a consequence of their HIV and TB status becoming known. In some cases, even attending DOTS clinics to get diagnosed is stigmatized. Sometimes patients who have uncertainty about HIV status deters from seeking diagnosis, knowledge of HIV status seems to be negatively associated with delay. However a study in Thailand found that patients who are HIV positive also have the shortest delay for TB diagnosis which the study speculated that patients are more willing to seek care after they know their HIV status. It also reported that women bear the highest burden of stigmatizing behaviors. In some communities,

female TB patients and women who are suspected to have active TB are likely to be forced to get divorced, send back to their parents' homes, and have fewer chances of getting married (Sykes, Tolhurst, & Squire, n.d.). In Bangladesh and Vietnam, it shows that fear of social isolation from family or community is a key factor contributing to delay among women. Stigma is suspected to be a contributing cause to why females are more likely to postpone diagnosis, are offered sputum tests less frequently, and feel more inhibited than men to discuss TB with their family. The difference impact of stigma on men and women is only one dimension of significant gender differences in patient delay (Sykes et al., n.d.). Studies have documented that women have longer delays in Nepal and Sudan, and that women are offered sputum tests less frequently than men. The fact that, in some communities, women need to be accompanied to DOTS clinics also accounts for longer female delay. Moreover gender differences in care-seeking behaviors explain delay differences between men and women. Men postpone care-seeking longer than women, reasons for longer delay among males include fear of individual costs of diagnosis and treatment. Also, men are more likely to neglect symptoms longer until it becomes serious before they seek health services. Women, instead, are more likely than men to seek care immediately after symptoms (Sykes et al., n.d.). However, studies in China and India have shown, women tend to self-medicate and/or choose private practitioners as the first point of contact after deciding to seek care (Waisbord, n.d.).

By use of incentive-driven mobile-phone-based mass screening by community laypeople at family clinics, and a mass campaign encouraging self-referral to private facilities, it was noted that, in Pakistan in 2011 compared with 2010, the number of case notifications doubled in the areas where intervention was going on than and fell slightly in the control

area (Khan et al., 2012). It was also noted a nearly four-time increase in adult pulmonary tuberculosis cases and more than seven-times increase in paediatric cases at Indus Hospital in 2011 compared with 2010. Six months after the start of the intervention, Indus Hospital became the second highest NTP reporting centre in Pakistan (Khan et al., 2012).

Over a third of the cases notified by Indus Hospital were identified through systematic screening of waiting rooms at family clinics and the hospital's outpatient department. Without this screening effort, few or none of these patients would have been detected, notified, and placed on standard treatment, and substantial delays in diagnosis would have been likely. Hospitals are well documented as sites where patients with tuberculosis unwittingly expose health workers and other patients to infection. Screening patients for productive cough at hospital outpatient departments should be standard in regions with a high burden of disease, even if screening does not identify all pulmonary tuberculosis cases. Of the 2416 cases of tuberculosis identified during the intervention, the largest group (1020 [42%]) were self-referrals to the Indus Hospital tuberculosis clinic. The number of self-referrals with pulmonary tuberculosis was more than three-times higher in 2011 than 2010, which is at least partly due to the billboard and cable television advertisements promoting Indus Hospital's services. The hospital's free high-quality services and its accessibility by public transport make it an attractive option for patients. Most of the self-referrals were residents of the intervention area, and similar increases in case notification due to self-referrals were not seen at other NTP reporting centers in the intervention or control areas. Although it is difficult to directly attribute this increase to the mass communication campaigns, the combination of targeted messaging and word-of-

mouth observations resulting from screening more than 450 000 people at family clinics and the outpatient department probably increased self-referrals in the intervention area. Around a fifth of the cases identified during the intervention period at the tuberculosis clinic were referrals from other clinics or from inpatient services at Indus Hospital; of these 520 patients, 426 (82%) had visited the outpatient department where screeners were active, suggesting significant room for improvement in the sensitivity of the screening questions. The seven-time increase in childhood tuberculosis cases presented both an opportunity and a logistical challenge. Additionally, the increase in smear-negative adults with suspected tuberculosis stretched radiology resources at Indus Hospital and resulted in diagnostic delays, or worse, many patients not being diagnosed because of their inability to visit Indus Hospital. Mobile radiograph facilities closer to the family clinics where screening was taking place could have mitigated these issues (Khan et al., 2012).

The 2014 GDHS collected information from women age 15-49 and men age 15-59 on knowledge and attitudes toward TB. Specifically, respondents were asked whether they had ever heard of the illness, how it spreads from one person to another, whether it can be cured, and whether they would want to keep the information secret if a member of their family contracted TB. This information is useful in policy formulation and implementation of programmes designed to combat and limit the spread of TB, and in addressing issues of discrimination. More than 8 in 10 women (83 percent) and about 9 in 10 men age 15-49 (89 percent) have heard of TB. Seventy-eight percent of women and 81 percent of men age 15-49 correctly responded that TB is spread through the air by coughing. A lower proportion of respondents age 15-19 (70 percent of women and 72

percent of men) responded that TB is spread through the air by coughing, compared with older respondents. It was found out that knowledge is higher among urban than among rural respondents. There was regional variations for instance, knowledge among women that TB is spread through the air by coughing ranges from 59 percent in Upper West to 84 percent in Central and Volta. Knowledge increases with education and wealth among both women and men. For instance, 68 percent of women and 64 percent of men with no education report that TB is spread through the air by coughing, compared with 90 percent and 91 percent, respectively, of women and men with a secondary or higher education.

More than 8 in 10 women and men age 15-49 (85 and 89 percent, respectively) believe that TB can be cured. Differences across subgroups are similar to those observed for the other TB knowledge components. When asked whether they would want to keep a family member's TB status a secret, 33 percent of women and 25 percent of men age 15-49 responded that they would. Among both women and men, the proportion who reported that they would want to keep a family member's TB status a secret is highest in the youngest age group 15-19 (42 percent and 33 percent, respectively). This percentage is highest among women in Upper East and men in Ashanti (51 percent each) (Survey, 2014). For women, fear of stigma regarding TB generally decreases with education and wealth, while the opposite is true for men, as fear of stigma noticeably increases with increasing education and wealth.

The prevalence of TB is higher among poor countries and at a regional level, a positive relationship has been observed between the estimated incidence rate of sputum smear positive cases and the percentage of the population living below the poverty line. Poverty is also associated with vulnerability to severe disease and death due to TB, especially

through its effect on access to health care. Evidence is accumulating to suggest that the poor have greater difficulty overcoming barriers in accessing care and completing treatment than the less poor because they have fewer resources to use for direct costs, such as transport to health facilities and consultation fees, and indirect costs, such as childcare. Delays in seeking treatment are longer amongst poor patients with a chronic cough, especially for poor female or aged people. Poverty is associated with low concordance with treatment, and therefore poor treatment outcomes. People constrained by the conditions of poverty who suffer from TB are more likely to default, especially between diagnosis, registration and completion of treatment. Poverty is a very important and well recognized factor in TB. There is evidence that staff in some DOTS programmes select patients for DOT according to their perception of whether the patients are likely to default, in order to be able to report good treatment success rates. In a study in India the patients who were excluded were those in absolute poverty, who were socially marginalized, itinerant laborers or had reduced social contacts. The issue of stigmatization is critical in this context and the extent to which this occurs will vary significantly from place to place. Impoverished people with TB are doubly stigmatized, through their poverty and through having TB (Sykes et al., n.d.)

The Government of Pakistan collaboration with provincial Governments and WHO with the local communities have started a community-based Basic Development Needs (BDN) Program in selected sites of all the four provinces of the country years passed. The BDN Programme aims at achieving a better quality of life, with the ultimate goal of attaining good health. It is an integrated approach for socio-economic development based on full community involvement, community organization and self-reliance through self-

management and self-financing by the people. DOTs is now in place in all the BDN districts Dadu in Sindh, Mastung in Balochistan, Nowhera in NWFP, Muzafarabad in Azad Jammu, and Kashmir and Multan and Kasur districts in the Punjab. This was planned to take advantage of an organized community members involvement on the overall success of the DOTs Programme. It is also widely understood that poverty and Tuberculosis follow each other like a shadow. Tuberculosis usually strikes persons in their most economically productive years and serves to perpetuate poverty in these individuals. The WHO Commission on Macroeconomics and Health (CMH) believes that the full economic cost of Tuberculosis within poor communities has often been under-estimated. In fact, the substantial non-treatment costs of these diseases are often greater, and considerably more far-reaching, than the direct costs of treatment to the health service. As the BDN programme also aims at poverty reduction through increasing literacy, improving health services, skills enhancement and provision of interest free loans for income generation, it offers a unique opportunity for improving the overall quality of life of the Tuberculosis patients and their families. TB is considered to be a disease of poverty. TB patients and their families pay the cost of TB in suffering, pain in grief. TB also causes psychological and social costs. TB patients may be rejected by family and friends or lose their jobs. In some societies, TB patients are seen as damaged for life or unmarriageable. Such discrimination can result in anxiety, depression, and reduction in the quality of life (WHO, 2014). According to WHO estimates, those living in absolute poverty are five times more likely to die before reaching the age of five, and two and half times more likely to die between the ages of 15 and 59, compared to those living in higher income groups. A less recognized reality is that improved health status

can reduce vulnerability and offer a route out of poverty. Both macro and micro economic studies indicate that better health translates into greater and more equitably distributed wealth by building human capital and increasing productivity. Indeed, healthy children are better able to learn, while healthy breadwinner adults are more able to work and care for their families. The health sector has thus, sufficient benefits and incentives justifying its engagement in poverty reduction initiatives, for which it has to develop both the skills and infrastructures necessary to work in partnership with other sectors and the community (WHO, 2014). The Health Sector is also succeeding in acting as a catalyst for the incorporation of effective health strategies into national poverty reduction policies and practices. Committed to this effect, the Ministry of Health in Pakistan in collaboration with WHO, provincial and district authorities is supporting the implementation of an integrated Basic Development Needs (BDN) program based on community involvement and supported through intersectoral action of government line departments. This is a self-sustained people oriented strategy that addresses the diverse basic needs of the community. It recognizes health, as a social goal to be integrated into the strategy of socio-economic development. This program has been implemented with close collaboration of Ministry of Health. It is planned to transfer the program to the concerned Ministry/department through Ministry of Health where PHC Cell-MOH is working as coordinating unit at the country level. Provincial Health Director/Chief Health for planning have been nominated as Provincial Focal Persons to facilitate resources mobilization and expansion of the program. There is growing interest in the role of communities in TB control. Community health workers play an effective role as treatment supporters as well as help in mitigating the stigmatization of tuberculosis.

Community support is extremely essential in new case identification due to the stigma factor people tend to hide their disease and do not initiate treatment. Community volunteers play an active role in providing support to TB patients, helping in enrolling TB patients in the DOTS TB diagnostic and Treatment Centres and play an effective role in ensuring patient compliance. This helps in reducing the default rate and patients who have received support from community volunteers, are more likely to complete treatment. For successful DOTS implementation, convenient and accessible TB treatment and care are essential. Providing TB care in the community is one approach. The challenge is to do this in ways that contribute to community development and that are effective, acceptable and affordable (Stop, Partnership, Assembly, The, & Strategy, 2005).

2.8 HEALTH SYSTEM LEVEL FACTORS AFFECTING TUBERCULOSIS CASE DETECTION

Case detection and treatment in Sisala East of Upper West is hampered by the fact that there is no facility at the sub-district levels for testing suspected patients. Also, drugs are received from the district level only when a case has been confirmed at the District hospital. Staff at the sub-district level have lamented that most specimen sent to the district hospital for testing either have no results send to them or takes so long before the result are sent to them and this was putting probable patients way from reporting at their facilities. They maintained that, it was making things difficult for them, especially when they do not know what to do for the patients without the test result. They continue in detail the difficulty that periphery facilities go through to diagnose and treat TB. In fact there are many problems with the way they treat suspected TB cases. In the first place the people are unwilling to come because of stigmatization but the few that come also have

to wait for a long time before getting into treatment because facility staff have to wait for the test result from Tumu. Some patients, it took more than one year to get them into treatment because facilities at the sub-district level do not get the laboratory result from Tumu early. The patient kept visiting the facility until they get the results or some instances they sent another sample and followed it up on every market day until about two weeks before they receive the test result and put positive patient on treatment. It is therefore clear that there is communication gap between sub-districts and the district hospitals (Ahorlu & Bonsu, 2013).

It is assumes that cases are either detected after an average of 4 months or not at all. Patients whose are not detected either die or self-cure after an average of 2 years. Self-cure refers to patients reverting to latent infection without being treated. The proportion of cases detected thus depends on the relative size of two rates, the larger the patient diagnostic rate, the larger the case detection rate and the shorter the average delay. As a result of these different assumptions, the same case detection rate of 70% is associated with a larger patient diagnostic rate and a larger impact on TB prevalence. It said that in the absence of HIV infection, a case detection rate of at least 70% corresponds with a patient diagnostic rate of at least 0.84 per person year and a patient diagnostic rate of at least 1.17 per person-year. (Borgdorff, 2004)

Studies in Africa and Vietnam indicates that health provider delay is associated with several factors, it has been found that the inability of health services to screen patients in first contacts contributes to delayed diagnosis. Poor interpersonal communication and inadequate attitudes of health providers coupled with the lack of attention and support to patients also account for delay case detection in several countries. This the states can

even leads to default and treatment failure even when cases are detected and put on treatment because of the quality of healthcare provider-patient interaction accounts for variations in treatment adherence. One study in South Africa has shown that the quality of the health practitioner-patient interaction coupled with correct causative belief were more strongly associated with compliance behavior.

It further reported that low awareness about the risk of TB symptoms is associated with delay in care-seeking. Patients with a higher perception about the severity of the disease are less likely to delay care-seeking and diagnosis. Also it demonstrate that patient who are distance from DOTS clinics (e.g. rural areas in The Gambia, Tanzania, Zambia) accounts for longer delay. Transportation costs (which are associated with distance between residence and DOTS clinics) also account for variations in timing of diagnosis in Zambia. It has been found that other costs and financial difficulties more broadly also account for delay in China. Patients are more likely to delay diagnosis when they need to borrow money to get to healthcare services, lose daily income to attend DOTS clinics, and when they lack health insurance (Waisbord, n.d.).

A study to assess workforce capabilities in countries with a high burden of tuberculosis determined that poorly developed human resources information systems compromised the reliability of data on tuberculosis workforce, and that wide variation in training course duration and staff numbers were poorly correlated with tuberculosis programs' performance. Tuberculosis training is incorporated into the basic training curriculum of physicians, nurses, community health officers and laboratory technicians in most developing countries, but the quality of such training varies widely within and between countries. The quality and sustainability of integrated tuberculosis programs depend

critically on the extent to which such basic training is of uniformly high quality. Post-basic training for tuberculosis control is inadequately funded by most developing country governments (Awofeso et al., 2008).

A survey was conducted that focused on barriers that could be modified through clinic-level interventions and impact provider behavior. Key predisposing factors included low motivation of staff, stigma towards TB patients, and poor sense of self-efficacy due to time and resource constraints. Enabling factors that made it more difficult to adopt recommended TB evaluation practices included inadequate or inconsistent microscopy and counseling skills, stock-outs of supplies and drugs and the multi-day smear examination process were found to be barrier hindering TB diagnosis. Other were the reinforcing factors like insufficient or inconsistent oversight from NTP, lack of recognition of staff training or achievement, and poor communication among clinic staff.

Some of the health level barriers clinic staff mentioned were that high costs associated with ancillary diagnostic testing, such as chest x-ray, contributed to incomplete TB diagnostic evaluation as you probably order for x-ray, it is a challenge being that not all the time that they find the free x-ray films in the hospitals. So patients may need to put in some money. The staff described how they perceived that out-of-pocket expenses accrued for patients as a result of seeking care outside of government clinics, because patients will have to be given referral to private facilities for services and this can take some time because if they are going to the private sector where they have to pay money, then they have to go back home and look for money. Staff also noted the opportunity costs for missed work, such as lost time for tending crops: "People come from very far now they

cannot do their work and that alone will stop someone from coming to access their management of the drug (Cattamanchi et al., 2015).

Research show that to improve detection and notification there should be improved awareness/knowledge, increasing access to care, better identification of people for testing, more sensitive and rapid diagnostic tests and stronger linkages for notification to NTPs. The first four areas are entry points to increase case finding and treatment. The last approach focuses on improving notification rather than necessarily increasing detection. It can be used when a sizable proportion of 'missed' cases are due to under notification; for example, by linking the private sector to NTPs and improving recording and reporting within NTPs. Studies on improved case detection have focused on different entry points such as improving access, accuracy of diagnostics and notification, and less frequently on measuring the effects of raising awareness and identification of people for testing. The diagnostic algorithm for screening and testing must be considered when undertaking these ACF interventions. Highly sensitive screening tests are preferred in combination with highly specific confirmatory tests. While culture testing (both highly sensitive and specific) is not feasible in many settings, caution must be taken when actively screening people with a low pre-test probability of TB, such as house-to-house approaches. Using smear microscopy alone may lead to false positive results due to lower specificity. A recent ACF intervention in Uganda found half of smear-positive cases to be culture-negative. The use of chest x-ray as a screening rather than diagnostic tool can be highly sensitive for identifying people needing further testing. All interventions to improve TB case detection will attempt to identify and diagnose prevalent TB and cut the cycle of transmission. Based on the barriers addressed in the pathway to care, the intervention

type, population targeted and testing procedures used, a monitoring and evaluation framework can be tailored ((Blok et al., 2014).

Study that was conducted in Uganda shows that on the part of policy planning and implementation to control tuberculosis, the MOH of Uganda introduced the Community based TB care (CBTBC) with direct observed therapy (DOTS) as the best strategy for controlling TB. To date, this strategy has been expanded to all districts in the country although the sub-county and patient coverage is still wanting. In the CBTBC with DOTS model, a public health worker (referred to as a Sub-County Health Worker (SCHW) links the formal health system to communities in their respective sub-counties. SCHWs conduct community mobilization, facilitate communities through their leaders to select community volunteers (CVs) and train those selected. In addition they supervise CVs and replenish their TB drugs fortnightly. The CVs are responsible for administering and directly observing therapy. The CVs are also responsible for referring the TB patients National Policy Guidelines for TB/HIV Collaborative Activities in Uganda to health centre for appropriate follow-up sputum testing. (Uganda march 2006).

In 2011, the TB CARE II Project, funded by USAID, developed a framework for analyzing TB delay along with a set of tools to collect data on patient delays. TB CARE II then conducted field assessments using these tools in two high-burden TB countries-Bangladesh and Swaziland-in order to identify specific factors causing delay. Factors identified to play a major role in those countries included: patients' unawareness of the severity of TB symptoms; misinterpretation of the symptoms of TB; distance to the health facility; cost associated with transportation; fear of being diagnosed with TB, and the stigma that might follow such diagnosis; and preference for untrained non-DOTS

providers. Additional tools were developed and tested through studies carried out in 2012 by TB CARE II in Bangladesh, Zambia, and Kenya to evaluate why there is the gap between TB standards and guidelines and actual TB health provider performance. These studies pointed out health system shortages that can contribute to delays in TB diagnosis and treatment, including delays in getting TB guidelines from the NTP to health care facilities; TB drug shortages; providers' insufficient knowledge about TB; inadequate supervision; gaps in information health providers communicated to TB patients (e.g., need for contact tracing, not linking all patients to DOT support); and lack of recording systems for contact tracing (Funded et al., 2013).

Studies show that although free tuberculosis screening and treatment is available through national tuberculosis programmes (NTPs) in most countries, an estimated 1·45 million people die from tuberculosis every year, making it one of the leading infectious causes of adult deaths globally. One important reason for this high death toll is inadequate case finding; more than 3 million of the estimated 8·8 million new cases annually are not notified. Many of these cases are either never diagnosed or receive treatment in the private sector. Untreated patients continue to transmit tuberculosis and those treated incorrectly can develop drug resistance; in both cases, mortality is high. In Asian megacities, 50–80% of symptomatic tuberculosis patients preferentially seek care in the private sector. Patients are often unaware of the free services available, perceive government services to be of poor quality, or are deterred by long waiting times and inconvenient hours. At both government and private facilities, many tuberculosis cases are missed because suspects are not identified (i.e., symptoms are not screened for or not recognized, or a diagnostic test is not requested). Although there has been some success

in engaging private health providers in Asian cities, persuading these providers to identify, notify to NTPs, and treat tuberculosis cases has been challenging. Harnessing the private sector has long been recognized as a missing component in global efforts against tuberculosis. It is unlikely that airborne diseases such as tuberculosis will be eliminated without novel approaches to ensure that patients who present in the private sector have access to appropriate diagnostics and free medication. In settings where strict private-sector regulation is unlikely, incentive-based approaches will be necessary to ensure that high-standard tuberculosis diagnosis and treatment become the norm, rather than the exception. An optimum case-detection strategy for dense urban settings with mixed public and private care providers would need to engage the private sector, be simple to implement and economically scalable, and yield high numbers of previously unidentified or unreported tuberculosis cases (Khan et al., 2012).

CHAPTER THREE

3.0 METHODOLOGY

3.1 STUDY AREA

Tano-North, Sunyani Municipal and Sunyani-West district, these three districts have common characteristics as they were together before they were separated by the Legislative instrument. Tano-North was separated from the then Sunyani district to be part of the Tano-South district in 1989 and was finally by the legislative instrument established in 2004. Sunyani-West district which was cut out of Sunyani-East district in November 2007 and inaugurated on 29th February 2008 has Odumansi as its district capital. Sunyani-Municipal share boundaries with Sunyani-West to the south east and Tano-North to the North-West. Ethnic groups in the various districts are mainly Akan, Hausa, Moshie, Bimobas, Sissalas, Grunshies, Dagarti, and Ewe and all religious groups like Christian, Islam, and traditional worshipers. All the Districts Assemblies are headed by a Chief Executive officer as the administrative authority of the district. The districts are sub divided into Sub-districts:

The vegetation is semi deciduous forest. The districts have two main seasons: the rainy season (May – July) and the dry season (October – March). The average rainfall in the districts is about 1200mm per annum. The districts experience moderately warm climate, with an average temperature of 24Ċ.

Rivers Tano, Kwasu and Subin drain the district. Areas such as Tanoso and Duayaw Nkwanta have high clay content which makes drainage in these areas poor. The other areas have fairly good drainage.

Sunyani Municipal has two hospitals, the regional hospital and the Municipal hospital with five sub-districts with clinics in all. Sunyani-west on the other hand has no district hospital but has health facilities in all their five sub-districts. However Tano-North district has a district hospital and with clinics and health centers in all their five sub-districts. TB patients are seen in all these health facilities.

The main economic activities of the people are farming and trading. There are quite a number of public and civil servants employed in various institutions. There are mining companies in the Tano-North district. One of these is the American-based mining giant, Newmont.

Traditional Authorities have become part of the local government structure. There are chiefs in all communities. Traditional authorities are the bodies around which communities are organized for health delivery activities including immunization, health education (B/A RHD Report, 2014)

3.2 STUDY TYPE AND DESIGN

This study was a descriptive-cross-sectional study. A cross sectional survey is a type of study where either the entire population or a subset of the population is selected and data collected to help answer research questions of interest at given point in time (Rindfleisch, Malter, Ganesan, & Moorman, 2008). This study design was therefore adopted to enable the study research sample a cross section of people with tuberculosis and interview to answer the research question.

Questionnaire were used to collect data. A well-structured questionnaire with open and close ended questions were used to collect data from respondents. The open questions,

are expected to bring out views of answers as respondents were giving their opinion about the questions posed to them. Close ended questions limits respondents to only the answers provided by the researcher, that is "Yes" or "No". The questions were written in English and respondents who could read and write were given the questions to provide answers to. However, with those who could not read and write, the local language dialect was used to guide them in responding to questions. After which the data was analyzed by comparing the health level factors and community level factors. Further analysis was done where logistic regression analysis was conducted and the odds and corresponding 95% Confidence intervals reported. The districts were selected because they have common characteristics that is they are among the districts with low case detection in the region. This afforded the researcher the opportunity to elicit perspectives from the TB patients who were on treatment at the time in these districts.

3.3 STUDY POPULATION

The study population was TB patients who were on treatment at the time of study in the selected districts. Records available in the three districts indicated a total TB cases of 100.

3.4 SAMPLE SIZE DETERMINATION

The sample size was determined using the Yamane formula. (Yamane, 1976)

$$n = \frac{N}{1 + Ne^2}$$

Where n is the minimum sample size, N is the population and in this case the population of TB patients in the three districts which is 100, e is the level of precision which was chosen to be 0.05 since the study used 95% confidence interval.

$$n = \frac{100}{1 + 100 * 0.05^2}$$

N=80

Therefore the sample size for this study is 80

3.5 SAMPLING TECHNIQUES

The sample size was allocated proportionate to the size of the population of TB patients. Allocation of cases to each district was based on their contribution to the population, which is Sunyani Municipal 40 patients, Sunyani-West 30 patients and Tano-North 30 patients respectively. The sample size was chosen by estimating the proportions for each district as shown in table 1.

Table 1: Sampling allocations for districts

Districts	Number of TB patients	Proportion(percentage)	Number Sampled
Sunyani-Municipal	40	40	32
Sunyani-West	30	30	24
Tano-North	30	30	24
Total	100	100	80

Simple random sampling strategy was used to select TB patients into the study at the district level. At each district, a list of registered TB patients were collected and numbers

allocated to each patient. Random numbers were generated using Microsoft Excel random number generator. Patients whose numbers have been generated were contacted and interviewed.

3.6 DATA COLLECTION TOOLS

Open and close ended questions was used in data collection whereby the open questions allows the respondents to give their opinions about questions posed to them. Closed ended questions on the other hand limits respondents to researcher's answers provided to each question, for example Yes or No. Respondents who could read and write were given questions to provide answers to as questions were written in english, those who could not read and write were guided by the local dialect in responding to questions.

3.7 DATA ANALYSIS AND INTERPRETATION

Data was analyzed with the help of Stata software Version 13, and Micro-soft Excel software. The data collected was edited manually, coded and entered in Microsoft Excel and imported into Stata software version 13before it was statistically analyzed. Basic descriptive statistics were run and the results presented using frequencies, percentages, and means. The relationship between variables was further analyzed using Pearson's Chi square test for categorical variables with observations 6 and above. This is because Pearson's Chi square has been reported to demonstrate more stability and gives a better estimator for such types of variables (Camilli, 1995).

However, for variables with observation less than 6, Fisher's exact test was conducted to determine the relationship as it has reported to demonstrate more stability in estimating association for variable with smaller observations (Routledge, 2005).

Logistic regression analysis was also conducted to present odds and corresponding 95% Confidence intervals reported to eliminate possible confounders.

3.8 ETHICAL ISSUES

The proposal was submitted to the Ghana Health Service Ethical Review Committee for approval, Permission was sought from Tano-North, Sunyani Municipal and Sunyani-West District Health Management Teams (DHMT) for their consent to carry out the study. The participants were informed of the essence of the work and they voluntarily participated study. They were assured that information provided by them will be used solely for the purpose of the study and that information will be kept confidential and in any resulting publication it is not possible to link data to individuals to the study.

Participants were informed of the minimal risk involved in this research because they were asked questions, some of which were very sensitive to their personal life and work. They were also made aware that there was no financial or material benefit for participation in the study. Participants were also informed that participation in this research study is entirely voluntary and that they could choose not to participate or may withdraw at any time even during the interview. It was made clear to them that they will not be penalized in any way should they decide not to participate or to withdraw from this study and that their participation will not have any effect on their treatment.

3.9 LIMITATION OF THE STUDY

The research was intended to cover all TB patients on treatment, but their availability at the time of the research limits the number who participated in the study. This is because a small number may have some bias on the interpretation of results collated. Also including TB patients alone in the study was a limitation as some other people without TB could also have some perceptions about factors affecting case detection but were not included

in the study. This study was also a cross-sectional design which means that causality could not be inferred as this was based on self- reported data.

CHAPTER FOUR

4.0 RESULTS

4.1 Socio-demographic Characteristics of Respondents

This study set out to determine the factors affecting case detection of tuberculosis, the perspective of the TB patient. In all 80 participants took part in the study.

The age of patients ranged from 27-70 years. The economically active age group was 27-37 years representing 7.5% of the population. Out of the 80 respondents 1.2% never attended school, 71.5% had primary education and 27.5% with secondary education respectively.

Many of the respondents were married (70.0), singles were 22.5%, devoiced 6.2% and widows 1.2. It appeared that most of the respondents were having formal regular incomes that is business 5.0%, farmers 76.2%, and professionals 18.7%.

Respondents were predominately Christians (97.5%), with 2.5% being African traditionalist.

There were more males than females in the study population. The sex composition was made up of 72 (90.0%) males and 8(10.0%) females as shown in the table 2 below.

Table 2: Demography characteristics of respondents

Variables	Frequency	Percentages (%)
Age (years)		
27-37	6	7.5
38-48	29	36.2
49-59	41	51.2
60-70	4	5.0
Marital status		
Divorced	5	6.2
Married	56	70.0
Single	18	22.5
Widow	1	1.2
Religion		
African tradition	2	2.5
Christian	78	97.5
Education		
Never attended school	1	1.2
Primary	57	71.2
Secondary	22	27.5
Occupation		
Business	4	5.0
Farmer	61	76.2
Professional	15	18.7

Gender		
Female	8	10.0
Male	72	90.0

Table 3 Demography characteristics Chi square ($\chi 2$) results, Fisher's exact

Variables	Delay N (%)	No delay N (%)	Chi square	P-Value
Age (years)				
27-37	1(16.67)	5(83.33)		
38-48	3(10.34)	26(89.66)	4.443	0.217
49-59	17(41.46)	24(58.54)		
60-70	1(25.0)	3(75.0)		
Marital status				
Devoiced	4(80)	1(20)		
Married	2(3.57)	54(96.43)	61.906	<0.001
Single	16(88.89)	2(11.11)		
Widow	0(0.00)	1(100.0)		
Religion				
African tradition	1(50.0)	1(50.0)	o.452	0.501
Christian	21(26.92)	57(73.08)		

Education				
Never attended	0(0.00)	1(100.0)		
Primary	4(7.02)	53(92.98)	57.249	<0.001
Secondary	18(81.82)	4(18.18)		
Occupation				
Business	2(50.0)	2(50.0)	48.708	<0.001
Farmer	5(8.2)	56(91.20)		
Professional	15(100.0)	0(0.00)		
Gender				
Male	17(23.61.)	55(76.39)	4.942	0.026
Female	5(62.50)	3(37.50)		

From the table above, association existed between delay and marital status, education, occupation and gender because the analysis shows p-values of less than 0.05 for all. However one delay in diagnosis has no association with age and religion as the p-values are more than 0.05.

Table 4 Demography characteristics (delay and odds ratio)

Variables	Delay N (%)	No delay N (%)	Odds ratio	P-Value
Occupation				
Business	3(75.0)	1(25.0)	Ref	
Farmer	60(98.36)	1(1.64)	12.11	0.22
Gender				
Male	56(77.78)	16(22.22)	2.11	0.71
Female	7(87.50)	1(12.50)	Ref	

Ref: reference, N: frequency, (%); percentages

From table 4 above the odds of farmers delay among the patients is 12.11 times more than that of the business group. However this is not statistically significant and could be as a result of chance considering that the P-value is 0.226. The odds of males delay among the patients is also 2.11 times that of the females, but this is also not statistically significant and could be as a result of chance as the P-value is 0.71.

KNOWLEDGE

Majority 65 (81.2%) of the TB patients interviewed said TB is a disease. About 15(18.7%) of them also said is air, few patients say TB is rain and witch attack. On the causes of TB however 63(78.7%) said is air, 15(18.7%) said alcohol with few patient saying rain and air. Few community members thinks that TB is caused by air pollution, curse from gods, witches and virus and 15(18.7%) think TB is caused by alcohol with 66.2% said TB is caused by bacteria. However with the transmission of TB, 15(18.7%) said communal eating, and few people says sneezing and 61(76.2%) said TB is transmitted by cough. Knowledge on the symptoms of TB was good as most of them know the symptoms. All the participants said TB is curable. Most of the participants (67.5%) said TB can be cured through orthodox medicine, with few 11(13.7%) of them said prayer camp and herbs.

HEALTH SEEKING BEHAVIOR

Community members 68(85.0%) seek health care in prayer camps and drug stores before health facility 11(13.7) and very few will visit traditional healer 1(1.2). Respondents interviewed 87% said they visited drugs store before visiting health facility with 1.2% of them visiting prayer camps. A few of the patients took one week before attending health facility and most of them 58(72.4%) more than one week delay at home before going to the heath facility.

ATTITUDE AND PERCEPTIONS

As many as 65.0% of TB patients interviewed said community people know they were having TB and some said community members relate well with them. Many of them said their relatives know they have TB and they encouraged them and do not see it as an embarrassment, however 18.7% said their relatives do not know they have TB because they either do not want to scare them or because their relatives know they drink alcohol and also because of fear of stigmatization. Many of the participants, 90.2% said their friends or neighbors did not know they have TB and 3.0% said their friends and neighbors know they have TB and they stigmatized them.

ACCESSIBILITY OF CARE

Majority of participants (66.2%) said their choice of health facility was as a result of proximity with few of them (2.5%) either being referred by a clinician or they were carried there by relatives because they could not walk there. Most of the participants (72.5%) walked to the facility and few (27.5%) used a vehicle which cost they said is okay. Regarding how people can voluntarily come out to report, 67.9% participants said stigmatization should stop, with 26.8% saying there should be effective treatment and education.

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Table 5: Community level factors

People views of TB	Frequency	Percentages (%)
What TB is		
Curse	4	5.0
Disease	65	81.2
Don't know	15	18.7
Causes of TB		
Air	63	78.7
Alcohol	15	18.7
Rain, air	1	1.2
Witches, air	1	1.2
TB transmission		
Communal eating	15	18.7
Cough	61	76.2
Cough, sneezing	4	5.0
Provider people will visit first with TB		
Health facility	11	13.7
Prayer camp, drugs store	68	85.0
Traditional healer, drug store prayer camp	1	1.2

Relative idea of TB status		
know	15	18.7
Don't know	65	81.2
Help from relatives		
Support from relatives	65	100.0
Friends and neighbours		
idea of your TB infection		
Don't know	77	90.2
Know	3	3.7
Means of travelling		
Vehicle	22	27.5
Walk	58	72.5
Amount spent for		
travelling		
GHS 4	1	4.5
GHS 5	21	95.4

QUALITY OF CARE

Majority (92.5%) of the patients interviewed said they spend 30 minutes at the facility when they go for care and that is okay for them. Few people took two weeks to be diagnosed, 70.0% of respondents took one month to be diagnosed, 21.2% two months to be diagnosed with very few of them above two months. All participants were asked to have sputum test before diagnosis was made when they visited the hospital and few of

them (8.0%) were asked to have chest x-ray before diagnosis was made. On the payment of TB services, few respondents (2.5%) paid for the x-ray services which was done in the private laboratory. Participants (2.5%) know that TB treatment is free, and majority (78.2%) of these respondents had this information from health workers with few (18.7%) of them getting the information from TV. Many of the participants (80.0%) interviewed said nurses related very well with them in terms of talking to them, with 15.7% saying nurse talked hash to them when they went for treatment. As many as 52% of TB patients could not remember whether they were told the number of months they will be on treatment. 22.5 % said they were not told with 12.5% saying they were informed. Majority (95.0%) of them also said health workers visit them at home to advise them to continue with their medication. Many (70.0%) of them were willing all the time to take their drugs with few (2.5 %) of them saying they tried to stop at a point in time because of the drugs reaction.

Table 6: Health level factors

Variables	Frequency	Percentage (%)
Time taken for orthodox facilities to diagnosed TB		
7 days	22	27.5
30 days	4	5.0
60 days	53	66.2
180 days	1	1.2
Sputum test		
Test taken	80	100.0
Chest x-ray		
Not taken	72	90.0
Taken	8	10.0
Payment of TB services		
Not paid	78	97.5
Paid	2	2.5
Where payment were made		
x-ray private lab	2	100.0
Free TB treatment		
Treatment free	80	100.0
Source of Information of free TB treatment		

Health worker	65	81.2
TV	15	18.7
Time spend at health facility		
30 minutes	74	92.5
60 minutes	2	2.5
90 minutes	4	5.0
Attitude of health staff		
Bad	15	18.7
Excellent	1	1.2
Good	64	80.0
Duration of treatment		
Don't remember	52	65.0
Don't know	18	22.5
Know	10	12.5
Visit by health workers		
Not visited	4	5.0
Visited	76	95.0

Table 7 Health level factors (delay and Chi square ($\chi 2$) results, Fisher's exact)

Variables	Delay	No delay	Chi square	P-Value
Chest x-ray				
Not taken	17(23.61)	55(76.39)	5.461	0.033
Taken	5(62.50)	3(37.50)		
Time spend at health facility				
30 minute	1(50.0)	1(50.0)	0.520	0.477
Above 30 minutes	21(26.92)	57(73.08)		
Free TB treatment				
Don't know	21(9.52)	57(90.48)	50.264	<0.001
know	1(50.0)	1(50.0)		
Source of information				
Health worker	1(50.0)	1(50.0)	2.257	0.232
TV	18(25.0)	54(75.0)		
Opening time to access services				
Not satisfactory	16(100.0)	(0.0)	54.436	<0.001
Satisfactory	7(8.06)	57(91.94)		
Staff attitude				
Bad	48(60.0)	4(40.0)	60.752	<0.001
Good	14(50.0)	14(50.0)		
Knowledge on Months of				

treatment				
Don't know	6(50.0)	6(50.0)	7.985	0.036
Know	15(22.06)	53(77.94)		
Visit by health workers				
Not visited	17(23.94)	54(76.06)	5.745	0.053
Visited	0(0.00)	9(100.0)		
Stop taking drugs for some time				
Not stop	2(3.57)	54(96.43)	61.131	<0.001
Stopped	0(0.00)	24(100)		

Association existed between delay and months of treatment, opening time to access services, staff attitude, health workers visit, stop taking drugs for some time, taking chest x-ray, because they have p-values of less than 0.05. Once a patient delays in taking x-ray he/she will not be detected early enough to be treated. Under free TB treatment, if the person knows TB treatment is free he/she will seek care fast and will be detected early. However delay has no association with source of information and time spent at health facility as their p-values show no significance.

CHAPTER FIVE

5.0 DISCUSSION

Tuberculosis like any other stigmatized and chronic disease is faced with the challenge of getting patients to seek care especially in developing countries where level of formal education is quite low. In this study 1.2% of respondents had none or never attended school. The age of respondents ranged from 27-70 years. The economically active age group was 27-37 years representing 7.5% of the population. The sex distribution of population shows that TB is among adults with males dominating (90.0%) than females (10.0 %.).

Most of the respondents have a regular income (business, farmers, and professionals). From the findings it appears that travelling cost was not an issue to most participants. This was when most of the respondents said the travelling cost was reasonable. This finding actually contradicts the finding in China that said patients who are distance from DOTS clinics accounts for longer delay. Transportation costs, which are associated with distance between residence and DOTS clinics, also account for variations in timing of diagnosis in Zambia. It has been found that other costs and financial difficulties more broadly also account for delay in China. Patients are more likely to delay diagnosis when they need to borrow money to get to healthcare services, lose daily income to attend DOTS clinics, and when they lack health insurance (Waisbord, n.d.). High proportion (71.2%) of respondents had primary education and this could be associated with the low level knowledge of the TB. Information on the cure of TB was encouraging as all 80 respondents representing (100%) know that TB is curable. This support a survey of

GDHS 2014 that show more than 8 in 10 women and men age 15-49 (85 and 89 percent, respectively) believe that TB can be cured.

Majority (65.0%) of respondents were aware of the most common symptoms of TB (cough, fever, loss of appetite and tiredness respectively). However it appeared they were unaware of the dangers of the symptoms so they delayed in seeking health care as about 70.0% took one month visiting other places before seeking health care at the orthodox facility. This however confirmed the findings from Tanzania that, in some communities, patients with low knowledge are more likely to visit traditional healers and pharmacists rather than DOTS providers, thereby delaying diagnosis (Waisbord, n.d.). Further studies by USAID 2011, in Bangladesh and Swaziland-in order to identify specific factors causing delay. Factors identified to play a major role in those countries included: patients' unawareness of the severity of TB symptoms; misinterpretation of the symptoms of TB; distance to the health facility; cost associated with transportation; fear of being diagnosed with TB, and the stigma that might follow such diagnosis; and preference for untrained non-DOTS providers. It also support one study from South Africa that reported that low awareness about the risk of TB symptoms is associated with delay in care-seeking. Patients with a higher perception about the severity of the disease are less likely to delay care-seeking and diagnosis (Waisbord, n.d.). On weather their friends and relatives know about their TB status 90.2% of respondents said they did not inform their friends and neighbors about their TB status and 18.7% also said they do not inform their relatives of their TB status. The respondents (3.7%) who inform their friends were shunned by their friends and 81.3% of respondents who inform their relatives were also stigmatized. This confirmed the survey carried out by the 2014 GDHS that collected

information from women age 15-49 and men age 15-59 on knowledge and attitudes toward TB. Specifically, respondents were asked whether they had ever heard of the illness, how it spreads from one person to another, whether it can be cured, and whether they would want to keep the information secret if a member of their family contracted TB. 33 percent of women and 25 percent of men age 15-49 responded that they would. Among both women and men, the proportion who reported that they would want to keep a family member's TB status a secret is highest in the youngest age group 15-19 (42 percent and 33 percent, respectively).

This same finding support the study that shows that in Bangladesh and Vietnam, it shows that fear of social isolation from family or community is a key factor contributing to delay among women. Stigma is suspected to be a contributing cause to why females are more likely to postpone diagnosis (Waisbord, n.d.).

Most community members (85.0%) seek health care in prayer camps and drug stores combine before health facility (13.7) and very few will visit traditional healer (1.2%). Respondents interviewed 87% said they visited drugs store before visiting health facility with 1.2% of them visiting prayer camps. A few of the patients took one week before attending health facility and most of them more than one week delay at home before going to the heath facility. This support the study in Asian megacities, 50–80% of symptomatic tuberculosis patients preferentially seek care in the private sector. Patients are often unaware of the free services available, perceive government services to be of poor quality, or are deterred by long waiting times and inconvenient hours. Although there has been some success in engaging private health providers in Asian cities,

persuading these providers to identify, notify to NTPs, and treat tuberculosis cases has been challenging (Khan et al., 2012).

Majority of participants (66.2%) said their choice of health facility was as a result of proximity with few of them (2.5%) either been referred by a clinician or they were carried there by relatives because they could not walk there. Most of the participants (72.5%) walk to the facility and few (27.5%) use a vehicle which cost they said is okay. Regarding how people can voluntarily come out to report, 67.9% participants said stigmatization should stop, with 26.8% saying there should be effective treatment and education.

Majority (92.5%) of the patients' interviewed said they spend 30 minutes at the facility when they go for care and that is okay for them. Few people took two weeks to be diagnosed, 70.0% it took them one month to be diagnosed, 21.2% two months to be diagnosed with very few of them above two months. This late diagnosis support the study that was carried out in Sisala East of Upper West indicates that case detection and treatment in Sisala East of Upper West is challenged by the fact that there is no facility at the sub-district levels for testing suspected patients. Also, drugs and other logistics are received from the district level only when a case has been confirmed at the district hospital. Staff at the sub-district level have complained they don't get feedback on most specimen sent to the district hospital for testing either have no results send to them or takes so long before the result are sent to them and as a result of this was putting probable patients way from reporting at their facilities. They also mentioned that, it was making things difficult for them, especially when they do not know what to do for the patients without the test result. In fact, they also mentioned there are many problems with the way

they treat suspected TB cases. In the first place the people are unwilling to come because of stigmatization but the few that come also have to wait for a long time before getting into treatment because facility staff have to wait for the test result from Tumu. Due to this some patients, it took more than one year to get them into treatment because facilities at the sub-district level do not get the laboratory result from Tumu early. The patient kept visiting the facility until they get the results or some instances they sent another sample and followed it up on every market day until about two weeks before they receive the test result and put positive patient on treatment. It is therefore clear that there is communication gap between sub-districts and the district hospitals (Ahorlu & Bonsu, 2013).

All participants were ask to have sputum test before diagnosis was made when they visited the hospital and few of them (8.0%) were asked to have chest x-ray before diagnosis was made. On the payment of TB services few (2.5%) of them paid for the x-ray services which was done in the private laboratory because the hospitals do not have x-ray machines and this brought financial difficulty and making diagnosis to delay. This support a survey carried out on some of the health level barriers, clinic staff mentioned that high costs associated with ancillary diagnostic testing, such as chest x-ray, contributed to incomplete TB diagnostic evaluation as you probably order for x-ray, it is a challenge being that not all the time that they find the free x-ray films in the hospitals. So patients may need to put in some money. The staff described how they perceived that out-of-pocket expenses accrued for patients as a result of seeking care outside of government clinics, because patients will have to be given referral to private facilities for services and this can take some time because if they are going to the private sector where

they have to pay money, then they have to go back home and look for money. Staff also noted the opportunity costs for missed work, such as lost time for tending crops: "People come from very far now they cannot do their work and that alone will stop someone from coming to access their management of the drug (Cattamanchi et al., 2015). Participants (2.5%) know that TB treatment is free, majority (78.7%) of them had this information from health workers with few (18.7%) of them getting the information from TV. Many of the participants (80.0) interviewed said nurses behave good toward them with 15.7% saying nurse behave badly toward them when they go for treatment this make them feel reluctant going for their drugs. This support the study carried out in Africa and Vietnam indicates that health provider delay is associated with several factors, it has been found that the inability of health services to screen patients in first contacts contributes to delayed diagnosis. Poor interpersonal communication and inadequate attitudes of health providers coupled with the lack of attention and support to patients also account for delay case detection in several countries. This the states can even leads to default and treatment failure even when cases are detected and put on treatment because of the quality of healthcare provider-patient interaction accounts for variations in treatment adherence. One study in South Africa has shown that the quality of the health practitioner-patient interaction coupled with correct causative belief were more strongly associated with compliance behavior (Waisbord, n.d.).

As many as 52% of TB patients could not remember whether they were told the number of months they will be on treatment. 22.5 % said they were not told with 12.5% saying they were informed. Majority (95.0%) of them also said health workers visit them at home to advise them to continue with their medication and this serve as motivation for

them. Many (70.0%) of them were willing all the time to take their drugs with few (2.5 %) of them saying a point in time because of the drugs reaction they were not trying to continue treatment. This however supported a study in Nigeria that shows that with the introduction of DOT case detection has not improve as it still below 21% rates(Okuonghae, 2010)

CHAPTER SIX

6.0 CONCLUSION

From the study the following factors are associated with TB case detection:

Practice of health seeking behavior of community members

Inadequate information/health education about TB in the districts

Attitude of some health staff

Stigmatization of community members (family and friends) toward TB patients

Lack of active case search as most of the cases were passive cases

Long duration of diagnosis of TB patients

Payment of x-ray services

6.1 RECOMMENDATIONS

It is recommended that the MHD/DHDs should ensure that there is routine health education on tuberculosis in the districts. Information about TB can be carried out with the use of education and communication materials to educate patients on the cause of tuberculosis, mode of transmission, free tuberculosis treatment and the need for people to report to hospital to be detected and subsequently be treated. This study shows that about 98.7% of participants have primary to secondary level of education which shows that majority can read so information education and communication (IEC) materials in the

form of posters can be displaced at advantage points across all the communities in the districts. Furthermore MHD/DHDs can put in some innovative actions within their level by forming special committees on tuberculosis control which membership could include opinion leaders, TB patients, representatives of local organizations, Community Health Officers and Community based Surveillance Volunteers to help create awareness in the various communities and also report TB cases to the various orthodox facility for detection and treatment.

National tuberculosis programme should also ensure that there is constant supply of all kind of logistics needed for the combating of tuberculosis, for instant the constant supply of IEC materials for effective education and other logistics necessary for diagnosis of TB.

The MHD/DHDs should ensure that there is routine active case search in the districts to ensure that cases are detected early as 98.5% took a month or more before reporting to hospitals. There should be TB focal persons in all sub-districts and all health facilities in the districts especially public health officers like disease Control Officers and Community Health Nurses to be responsible for TB diagnosis, such that any person who come with cough more than two weeks is referred to such an officer. This will ensure early TB diagnosis and subsequently prevent lost cases and increase case detection.

The MHD/DHDs should ensure that there is intersectoral collaboration between them and the media to help them in carrying out education about TB to the general public since 18.7% of participants said they heard free TB treatment information from TV.

The MHD/DHDs should orientate staff to ensure interpersonal relationship between them and patients as some participants responded that the attitude of health staff is bad.

The regional health directorates should ensure that there is regular supervision to check districts that do not do case search and therefore are not meeting their targets such that they will help them improve their case detection targets by detecting early and more cases.

National Tuberculosis Control Programme (NTP) should ensure that all government hospitals are provided with x-ray machines to stop the challenge of referring patients to go for private x-ray services which some cannot afford and therefore refuse to come back and only to be carried back later when is too late or may not come at all leading to lost to follow up.

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APPENDICES

FACTORS AFFECTING CASE DETECTION OF TUBERCULOSIS: PERSPECTIVE OF TB PATIENTS IN TANO NORTH DISTRICT, SUNYANI-WEST DISTRICT AND SUNYANI-MUNICIPAL OF BRONG-AHAFO REGION OF GHANA

TB PATIENTS QUESTIONNAIRE: JUNE 2016

GREETING AND INFORMED CONSENT (TB PATIENTS)

You are invited to participate in a research study conducted by Kan Atolee David N. a student of the University of Ghana pursuing Master in Public Health. The purpose of this research is to identify factors that affect case detection of tuberculosis in the Sunyani Municipal, Sunyani-West and Tano-North districts. This will enable decision makers in health to design appropriate methods of improving case detection that will lead to early diagnosis and treatment of tuberculosis. Your participation will involve a short interview where you will be asked some questions within 30 minutes. There is minimal risk involved in this research. You will be asked questions, some of which may be very sensitive to your personal life and work, so we need you to cooperate with us. There will be no financial or material benefit for participation in the study. We will do everything we can to protect your privacy. Your participation in this research study is entirely voluntary. You may choose not to participate and you may withdraw your consent to participate at any time even during the interview. You will not be penalized in any way should you decide not to participate or to withdraw from this study.

Your participation will not have any effect on your treatment.

Please contact the principal investigator (Kan Atolee David N.) at CHNTC Sunyani-Tanoso on 0202990713.

If you have any questions or concerns about your rights as a research participant, please contact the Ghana Health Ethics Committee Review Board.

I have read this consent form/this consent form have been read to me and I have been given the opportunity to ask questions. I give my consent to participate in this study.

....

Signature/thump print **signature**

Respondent **Interviewer**

Date.....

DEMOGRAPHY DATA

SN	ITEM/QUESTION	RESPONSE
	SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS	
1	Marital status	Single.....001 Married..... 002 Divorced.....003 Widow/Widower.....004
2	Religion	Christian .....001 Muslim.....002 African Tradition.....004 Others (Specify).....
3	Education status	Never attended school .....001 Primary education .....002 Secondary education 003

		Tertiary/post-secondary education…..004
4	Occupation	Student ……...001 Farmer ……...002 Business……...003 Professional……004
5	Age at last birthday	
6	Gender	Male……001 Female ……..002

BACKGROUND INFORMATION

	SECTION B: KNOWLEDGE REGARDING TB	
7	What is TB?	Disease ……001 curse……002 don't know……...003 other (specify)……
8	What do you think causes TB?	Sunshine……001 witches ……002 rain ……003 air ……...004 don't know……005

		other (specify).....
9	How do people in the community think TB is caused?(probe)	....
10	How is TB transmitted?	cough .....001 sneezing.....002 other (specify).....
11	What are the symptoms of TB?	Cough.....001 Night sweat.....002 Weight loss.....003 fever.....004 tiredness.....005 loss of appetite.....006 other (specify).....
12	Is TB curable?	Yes .....001 No .....002 Don't know.....003
13	If yes how can it be cured?	herbs.....001 Orthodox medicine.....002 Soothsayer.....003 Prayer camp.....004 Don't know.....005 Other (specify).....

	SECTION C: HEALTH SEEKING BEHAVIOUR	
14	In your community, which provider will people visit first when they fall sick?	Traditional healer.....001 Prayer camp.....002 Health facility.....003 Drug store.....004 Other (specify).....
15	Where did you first go for treatment?	Traditional healer .....001 Prayer camp.....002 Health facility.....003 Drug store.....004 Other specify.....
16	How long did it take you visiting other places before going to the facility?	....
SECTION D: QUALITY OF CARE		
17	Can you tell approximately how long it took to be diagnosed after you first developed the symptoms	
18	When you started visiting orthodox facilities how	One week.....001

	long did it take before you were diagnosed?	One month.....002 Two months.....003 Six months.....004 Others (specify).....
19	Were you asked to have a sputum test before diagnosis was made?	Yes.....001 NO.....002
20	Were you asked to have a chest x-ray before diagnosis was made	Yes .....001 No 002
21	Did you pay for TB services in the facility	Yes .....001 No 002
22	If yes where did you make the payment	Consulting room.....001 Laboratory.....002 Dispensary .....003 Injection room.....004 Other (specify).....
23	Do you know that TB treatment is free?	Yes .....001 No 002
24	Where did you get the information?	Heath worker.....001 Radio .....002 TV .....003 Other specify.....

25	How long do you stay in the health facility when you come for treatment?	One hr.....001 Between 1hr and 2hrs.....002 30 minutes .....003 Above 2 hrs 004
26	Is the opening time of the facility favorable to you?	Yes .....001 No .....002 Don't know 003
27	How would you classify the attitude of health staff	Bad .....001 Satisfactory.....002 Good .....003 Excellent 004
28	Were you told for how many months you would have to be treatment?	Yes .....001 No .....002 Don't remember 003
29	If yes (specify) months	.....
30	Has health workers ever visited you at home or work place in connection with your TB	Yes .....001 No 002
31	If yes, what did he/she say?	.....
32	Was there a time when you didn't want to come to the health facility for	Yes .....001 No 002

	treatment?	
33	If yes why?	.....

	SECTION D: ATTITUDE AND PERCEPTIONS	
34	How do community people relate with you as a TB patient? (probe)	
35	Do your relatives know you have TB?	Yes.....001 No .....002 Don't know.....003
36	If no or don't know, why? (probe)	
37	If yes do they encourage or help you in any way to go to the facility?	Yes .....001 No.....002
38	If yes, specify who and how	
39	Was your TB diagnosis an embarrassment in your family?	Yes .....001 No .....002 Don't know.....003
40	Do your friends and neighbors know you have TB?	Yes.....001 NO.....002

		Don't know.....003
41	If yes how did they treat you when they found out?	

	SECTION E: ACCESSIBILITY OF CARE	
42	Why do you come to this facility and not other? (probe)	
43	How do you get (travel) to the facility?	Walk .....001 Vehicle .....002 Other (specify).....
44	How much time does it take you to get to the hospital/facility?	Less than 10 minutes.....001 10 minutes.....002 30 minutes.....003 An hr.....004 More than an r.....005
45	If you travel by vehicle how much do you spend travelling to and from the facility?	GHS 4.00 .....001 GHS 5.00.....001 GHS 5.00 above.....003
46	How will you	Too much.....001

	access the transport cost?	Just okay.....002 Low 003
47	In your opinion what can be done to encourage people who may have TB in the community to report to the health facility for detection?	....

THANKYOU